CLAIMS

1. A birefringent optical film comprising:

at least one birefringent A–layer; and

at least one birefringent B–layer,

wherein the birefringent A–layer has a property satisfying $ny_a \geq nz_a > nx_a$ or $nz_a > ny_a > nx_a$, and

the birefringent B–layer has a property satisfying $nx_b \geq ny_b > nz_b$,

where nx_a, ny_a and nz_a respectively represent refractive indices in an X–axis direction, a Y–axis direction, and a Z–axis direction in the birefringent A–layer, with the X–axis direction being an axial direction that is the same as a below–mentioned X–axis direction of the birefringent B–layer, the Y–axis direction being an axial direction that is the same as a below–mentioned Y–axis direction of the birefringent B–layer, and the Z–axis direction being a thickness direction perpendicular to the X axis and the Y axis, and

nx_b, ny_b and nz_b respectively represent refractive indices in the X–axis direction, the Y–axis direction, and a Z–axis direction in the birefringent B–layer, with the X–axis direction being an axial direction exhibiting a maximum refractive index within a plane of the birefringent B–layer, the Y–axis direction being an axial direction perpendicular to the X axis within the plane, and the Z–axis direction being a thickness direction perpendicular to the X axis and the Y axis.

2. The birefringent optical film according to claim 1, wherein the birefringent B–layer meets a requirement represented by a formula (1) below,

$$0.005 \leq \Delta n_b \leq 0.2 \qquad (1)$$

where Δn_b is $nx_b - nz_b$, and nx_b and nz_b respectively represent the refractive indices in the X–axis direction and the Z–axis direction in the birefringent B–layer, with the X–axis direction being the axial direction exhibiting the maximum refractive index within the plane of the birefringent

B–layer and the Z–axis direction being the thickness direction perpendicular to the X–axis.

3. The birefringent optical film according to claim 1, wherein the birefringent A–layer is formed of at least one of a polymer exhibiting negative birefringence and a polymer exhibiting positive birefringence.

4. The birefringent optical film according to claim 3, wherein the birefringent A–layer is formed of a mixture of the polymer exhibiting negative birefringence and the polymer exhibiting positive birefringence.

5. The birefringent optical film according to claim 1, wherein the birefringent B–layer is formed of a polymer exhibiting positive birefringence.

6. The birefringent optical film according to claim 5, wherein the polymer exhibiting positive birefringence is at least one polymer selected from the group consisting of polyamide, polyimide, polyester, polyetherketone, polyaryletherketone, polyamide imide and polyesterimide.

7. The birefringent optical film according to claim 1, meeting a requirement represented by a formula (4) below,

$$-3° \leq \text{alignment axis accuracy} \leq 3° \qquad (4)$$

where the alignment axis accuracy refers to variation in slow axis within a plane of the birefringent optical film.

8. The birefringent optical film according to claim 1, wherein an in–plane retardation of the birefringent optical film has reciprocal wavelength dispersion characteristics.

9. The birefringent optical film according to claim 1, meeting requirements

represented by formulae (5) and (6) below,

$$|\Delta nd_a| > |\Delta nd_b| \quad (5)$$

$$\alpha_a < \alpha_b \quad (6)$$

in the formulae (5) and (6),

$\Delta nd_a = (nx_a - ny_a) \cdot d_a$,

$\Delta nd_b = (nx_b - ny_b) \cdot d_b$,

$\alpha_a = \Delta nd_{a430nm} / \Delta nd_{a550nm}$, and

$\alpha_b = \Delta nd_{b430nm} / \Delta nd_{b550nm}$,

where nx_a and ny_a respectively represent the refractive indices in the X–axis direction and the Y–axis direction in the birefringent A–layer, with the X–axis direction being the axial direction that is the same as the X–axis direction of the birefringent B–layer and the Y–axis direction being the axial direction that is the same as the Y–axis direction of the birefringent B–layer, and d_a represents a thickness of the birefringent A–layer,

nx_b and ny_b respectively represent the refractive indices in the X–axis direction and the Y–axis direction in the birefringent B–layer, with the X–axis direction being the axial direction exhibiting the maximum refractive index within the plane of the birefringent B–layer and the Y–axis direction being the axial direction perpendicular to the X–axis within the plane, and d_b represents a thickness of the birefringent B–layer,

Δnd_{a430nm} and Δnd_{a550nm} respectively represent Δnd_a values of the birefringent A–layer at wavelengths of 430 nm and 550 nm, and

Δnd_{b430nm} and Δnd_{b550nm} respectively represent Δnd_b values of the birefringent B–layer at the wavelengths of 430 nm and 550 nm.

10. A laminated polarizing plate comprising a birefringent optical film,

wherein the birefringent optical film is the birefringent optical film according to claim 1.

11. A liquid crystal panel comprising a liquid crystal cell and an optical

member, the optical member being disposed on at least one surface of the liquid crystal cell,

wherein the optical member is the birefringent optical film according to claim 1 or the laminated polarizing plate according to claim 10.

12. A liquid crystal display comprising a liquid crystal panel, wherein the liquid crystal panel is the liquid crystal panel according to claim 11.

13. An image display comprising the birefringent optical film according to claim 1 or the laminated polarizing plate according to claim 10.

14. The birefringent optical film according to claim 4, wherein the polymer exhibiting negative birefringence and the polymer exhibiting positive birefringence contained in the mixture for forming the birefringent A–layer are compatible with each other.

15. The birefringent optical film according to claim 1, comprising one birefringent A–layer and one to three birefringent B–layers.

16. The birefringent optical film according to claim 1, wherein the birefringent A–layer is formed of at least one of a polymer exhibiting negative birefringence and a polymer exhibiting positive birefringence, and the birefringent B–layer is formed of a polymer exhibiting positive birefringence.